

REMARKS

Applicants reply to the Final Office Action dated April 27, 2009 within three months and file an RCE. Claims 1-15 were pending in the application and the Examiner rejects claims 1-15. Support for the amendments may be found in the originally-filed specification, claims, and figures. No new matter has been introduced by these amendments. Applicants assert that the application is in condition for allowance and reconsideration of the pending claims is requested.

The Examiner rejects claims 1-8, 12-13 and 15 as being obvious over Kawahara (US 6,963,361) in view of Gove (US 5,973,733). The Examiner also rejects claim 9 as being obvious over Kawahara in view of Gove, and further in view of Kotaki (JP 2001- 230965A). The Examiner also rejects claim 10 as being obvious over Kawahara view of Gove, and further in view of Kingetsu (US 6,181,379). The Examiner also rejects claim 11 as being obvious over Kawahara view of Gove, and further in view of Okada (US 5,502,484). The Examiner also rejects claim 14 as being obvious over Kawahara in view of Gove, and further in view of Hara (US 7,057,645). Applicants respectfully disagree, but Applicants amend the claims to expedite prosecution and to further clarify the patentable features of the claims.

In reply to the previous Office Action dated September 4, 2008, claims 1, 5 and 15 were similarly amended to recite,

“ ... the information has been corrected by setting a number of virtual pixels included in each of the plurality of frames to be larger than a number of actual pixels included in an image pickup plane of an image pickup element in accordance with an amount of shaking motion between the plurality of frames”.

However, the Examiner asserts that the aforementioned feature is disclosed by the newly cited Kawahara. Applicants assert that Kawahara is limited to an image sensing apparatus comprising an electronic anti-vibration system which performs vibration correction by electronically extracting a sensed image based on vibration data of the image sensing apparatus main body (column 1, lines 8-16 of Kawahara). Applicants assert that in Kawahara, the shift amount is only used to determine the proportional distribution between two adjacent pixels (column 16, lines 24-30 and column 17, lines 19-20 of Kawahara), but not directly related to the number of interpolated pixels. Rather, the number of interpolated pixels generated is always twice the number of original pixels regardless of the shift amount (column 16, lines 59-63 of Kawahara).

In contrast, in the presently claimed invention, the shift amount is directly related to the number of virtual pixels set for correction. More specifically, (as described for example on page 42, lines 24 to page 43, line 1), when the amount of shaking motion to correction has a resolution of 1/10 of the pixel, in order to precisely perform the correction, virtual pixels are generated by dividing the pixel into 10 parts, which is the ratio of the actual pixel size to the amount of shaking motion, and the virtual pixels are shifted by a virtual pixel space. Therefore, in the presently claimed invention, the number of virtual pixels are generated depending on the ratio of the actual pixel size to the amount of shaking motion.

Therefore, to further clarify the patentable features related to such dependence between the number of virtual pixels generated and the amount of shaking motion, Applicants similarly amend claims 1, 5 and 15 to recite (emphasis added),

“ ... the information has been corrected by setting a number of virtual pixels included in each of the plurality of frames to be larger than a number of actual pixels included in an image pickup plane of an image pickup element in accordance with an amount of shaking motion between the plurality of frames,

wherein the number of virtual pixels is set based on a ratio of the predetermined actual pixel size to the amount of shaking motion between the plurality of frames”.

Support for such amendments can be found on, for example, page 42, line 11 to page 43, line 1 of the original specification.

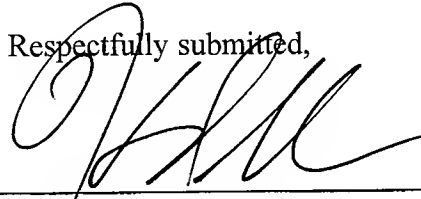
Unlike Kawahara where the number of the interpolated pixels is always twice the number of the original pixels regardless of the shift amount, in the presently claimed invention, the number of virtual pixels is set depending on the amount of shaking motion between the plurality of frames, more specifically, the ratio of the predetermined actual pixel size to the amount of shaking motion between the plurality of frames. Consequently, in the presently invention, for different amount of shaking motion, different number of virtual pixels are generated accordingly. As a result, the presently claimed invention is capable of performing the shaking motion correction more precisely than Kawahara.

Applicants assert that Gove and the other references cited by the Examiner to reject the dependent claims clearly do not make up the deficiency of Kawahara. Moreover, dependent claims 2-4 and 6-14 variously depend from independent claims 1 and 5, so Applicants assert that

dependent claims 2-4 and 6-14 are differentiated from the cited references for at least the reasons set forth above, in addition to their own respective features.

Applicants respectfully submit that the pending claims are in condition for allowance. The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 19-2814. Applicants invite the Examiner to telephone the undersigned if the Examiner has any questions regarding this Reply or the present application in general.

Respectfully submitted,



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By: _____

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